

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/JP2005/004393

## A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl.<sup>7</sup> F28F1/02, B21D53/04

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl.<sup>7</sup> F28F1/02, B21D53/04

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Published examined utility model applications of Japan 1922-1996  
Published unexamined utility model applications of Japan 1971-2005  
Registered utility model specifications of Japan 1996-2005  
Published registered utility model applications of Japan 1994-2005

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2003-053460A (SHOWA DENKO K.K.) 2003.02.26, line 48, column 11, page 7 to line 44, column 13, page 8, Figs 1 to 3 & US 2004/0244196 A1 & EP 001420910 A1 & WO 2002/100567 A1 & TW 000557235 B & CZ 020040024 A	1-26
Y	JP 2000-193387A (SHOWA ALUMINUM Co., Ltd.) 2000. 07.14, lines. 9-13, column 2, page 2, line 49, column 6, page 4 to line 11, column 7, page 5, lines 33-45, column 8, page 5, lines 16-24, column 10, page 6, Figs 1 to 3 (Family: none)	1-26
Y	JP 08-042985A (SHOWA ALUMINUM Co., Ltd.) 1996. 02.16, lines 23-47, column 6, page 4, Fig. 12 (Family: none)	3

 Further documents are listed in the continuation of Box C. See patent family annex.

- \* Special categories of cited documents:
- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed
- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

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